

Exploring Computer-Assisted Portfolio Assessment under Learning-oriented Concept in Moral Education in Foreign Language Teaching in the Context of Big Data

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Abstract: In the era of big data, language education evaluation is confronted with a range of opportunities and challenges. This study begins by developing computer-assisted portfolio assessment in theory, then proceeding to investigate its effectiveness through an empirical study in the realm of moral education within foreign language teaching. The study involves the design of an experimental class and a control group to address three main research questions of examining the challenges and suggestions arising from the practical use of the computer-assisted portfolio. By analyzing qualitative data, this paper posits that computer-assisted portfolio assessment, within the context of big data, enhances evaluation efficiency. Specifically, it facilitates the integration of various assessment types (summative, formative, and autonomous), establishes a connection between current learning and future learning, and promotes an interactive approach to moral teaching through language instruction and testing.

Keywords: Computer-assisted Portfolio; Learning-oriented Assessment; Moral Education; Foreign Language Teaching; Big Data; Meta-Cognitive Strategy

1. Introduction

In today's digital age, the continuous progress and wide application of big data technology has changed the way industries operate, including the field of language education evaluation. With the support of big data technology, traditional portfolio assessment can be changed into computer-assisted assessment model to help not only evaluation but also learning. Passive learning or test-oriented learning is often recognized as an

issue for tertiary learners. Summative function accounts for this kind of learning, while formative function emphasizes the learning process. The concept of learning-oriented assessment (LOA) has been proposed as a promising alternative to facilitate learning, extending the formative function to emphasize the transition from learning product to learning process.

This paper aims to explore and assess computer-assisted portfolio assessment from the perspective of educational psychology. The following sections are structured as follows: first, the theoretical underpinnings of the LOA concept are discussed, followed by an empirical study that includes two research questions and a detailed research methodology. Subsequently, the results and discussions from the empirical study are presented, leading to the final section that offers conclusions based on the conceptual advancements and findings from the empirical investigation.

2. Literature Review

2.1 The Concept of Learning-oriented Assessment

The concept of Learning-Oriented Assessment (LOA), which is rooted in previous works, is proposed as an effective assessment framework to promoting learning and evaluation [1]. LOA's primary focus is on learning orientation, emphasizing the facilitation of learning before certifying achievement. The framework of LOA outlines assessment as a combination of certifying learning for its summative function and promoting learning for its formative function, highlighting LOA as a synergy between summative and formative roles. While LOA encompasses both formative and summative functions, the formative role is considered

more significant. This synergy enables LOA to operate effectively in either function as long as it adheres to its three core principles: 1) using assessment activities as learning tasks, 2) fostering student engagement during assessment through peer- or self-assessment, creating criteria, and involving quality exemplars, and 3) providing sustainable and constructive feedback that impacts current and future learning [1]. Among these principles, the first principle holds the most influence as it promotes deep learning, contrasting with surface learning characterized by 'short-term bursts' or mechanical memorization, which is not aligned with the objectives of LOA.

2.2 The Components of the Computer-Assisted Portfolio Assessment

2.2.1 Summative function

Summative function is necessary for the new LOA despite its shortcomings. It refers to the measurement of learners' outcomes for a particular time through judging, describing, recording and reporting their learning achievements [2]. It provides a certification of the achievements [3]. Making comparisons among the learners is a typical feature in summative function. The purpose of summative function is to measure the achievements and to record their performance. To achieve the purpose, a teacher is a decision-maker of a lesson plan, a judge of learning progress, a determiner of the learners' merits and shortcomings. Therefore, summative function can be used for instruction in school and can also be adopted as certifications, vocational qualifications, school evaluation, and selections of employments or further education.

However, the limitations of summative function should not be ignored. It firstly fails to mirror the learning process [4]. Secondly, increasing test anxiety and individual gap negatively affect learners' confidence, self-esteem and learning motivation. Thirdly, summative function leads to grade-oriented teaching. As a result, the validity of the assessment is under suspicion. And the learners acquire skills of passing exams but lose abilities of problem-solving and critical thinking. Furthermore, feedback is inefficient due to its performance orientation. Its inefficiency lies in being non-evaluative, vague, coming too late, and being one-off.

2.2.2 Formative function

The limitations of summative function encourage the development of formative function. The most acceptable definition of formative function is that '[formative function] is part of everyday practice by students, teachers and peers that seeks, reflects upon and responds to information from dialogue, demonstration and observation in ways that enhance ongoing learning.' [5]. Considering this definition, several keys in formative function can be demonstrated including purposes, features, feedback and benefits.

Firstly, it can be seen from the definition that the purpose of assessment is to provide supportive information about the learners' strengths and limitations for learning promotion [6]. Chinese researchers also suggest that formative function is seen as an assessment mode as well as an instructional approach after studying the use of formative function in English writing. These arguments indicate that formative function aiming at learning development is a part of teaching.

Secondly, formative function is characterised as flexibility, individualisation and independence. Flexibility is integrated into the learning process but is not used at the end of a learning period. During the learning process, it can be an assistant to diagnose the personal learning needs [7]. As for individualisation, it is a personal diagnosis rather than a standard for all learners. Individualised assessment format means the diversity of formative function. Besides, its independence means that it is not used for comparison among the learners [7].

Furthermore, peer feedback or teacher's feedback is vital in enhancing learning. Specifically, the feedback should 1) make the learners aware of their current learning situations by providing shreds of evidence of ongoing learning [7], liking understanding learning mistakes or errors; 2) help the learners to reflect the learning goal; 3) make them understand how to bridge the gap between the present learning and the desired objectives, for example, changing or selecting meta-cognitive strategies, and 4) the feedback should be specific, timely, timing, sustainable and purposeful.

In addition, the use of formative function is beneficial to both the learners and the teachers. In terms of the learners, their understanding of

learning objectives and assessment processes is enhanced by assessment for learning through self-assessment and critical reflection in formative function [8]. Also, formative function increases chances for learners' self-monitoring, and peer collaboration, and teacher-student interaction because of its emphasis on peer feedback, reflection and effective teachers' feedback. Formative function can also promote the learners' confidence due to low stress on the individual difference. For the teachers, information from the formative function can make instructions reflective to improve teaching. However, formative function is not bright enough to light up the road of future learning, although it illuminates the present position or the way to the desired goal. The learning enhanced by formative function is present and short-term. How about learning after graduation? Whether do assessments adopted in school cultivate their abilities for further learning after graduation or even lifelong learning? To address the problems, autonomous function is called for.

2.2.3 Autonomous function

Autonomous function tries to enhance the autonomy of learners. The autonomy is fostered based on learners' active use of meta-cognitive strategies, especially for cultivating their self-awareness on assessment. Establishing self-awareness enables them to understand and appropriately choose different assessment modes. The learners should have the awareness of what, how, what, when and why to adopt self-monitoring, self-reflection, a plan and self-assessment. Several questions as examples can help show the awareness including 1) which assessment mode is appropriate at different learning stages, 2) when I need a quiz or a reflective journal or standardized test, 3) how do I understanding the synergies between formative and summative function s, 4) when I need self-assessment, teacher-assessment and peer-assessment separately or together, 5) whether I should assess my strengths for a certain time, 6) whether I should evaluate my weaknesses again, 7) which assessment mode is most appropriate to me for the course preview or review, 8) when I should have self-reflection, 9) how I monitor learning process, 10) what I should do after a test. These questions are not principles illustrating the assessment

awareness but can be the references to judge whether learners hold the awareness or not. More examples may come from increasing practices.

3. Research Questions

This study is intended to explore the impact of the computer-assisted portfolio for language-integrated moral education in an EFL teaching and learning practice. According to such aim, two research questions are designed as follows: Research question 1: What are the challenges encountered during the employment of the electronic portfolio assessment for learning in the moral education in EFL context?

Research question 2: What are the suggestions taken to deal with the challenges when adopting the electronic portfolio assessment?

4. Research Method

4.1 Research Context

The college where the course is administrated has never adopted the LOA in moral education in English class. The computer-assisted portfolio was used in this empirical study to practice moral education in an EFL setting. It is created during the "English Speaking" semester in 2022, specifically from March to June. It is not necessary to register for the course through my college. In especially for the empirical investigation, the course was directed by the researcher. As a result, the course gave the students' college coursework no credit. The most appealing learning resources have been the course book, English-language newspapers, and English-language movies. In addition to enhancing spoken English, the extensive covering of a wide range of subjects can broaden students' vocabulary in English and increase their comprehension of moral principles and the wider world within the English context. The researcher in charge of the plan teaches the course.

4.2 Participants

There are two classes used for this course: an experimental class and a control class. The participants, who range in age from 18 to 20, are all first-year students at my college majoring in anything other than English. They spent more than ten years in formal English education, ranging from elementary to middle school. The participants in this study were

chosen in a non-random manner. This section addresses first-year students across all college placement test score ranges. The selected individuals are divided into two groups: the experimental class (51) and the control group (53).

4.3 Steps

The course structures in the control and experimental classes are similar, except for their assessment methods. The control class uses traditional assessments, while the experimental class employs a four-step process: 1) introduction of goals and criteria by the teacher, 2) training on electronic portfolios, 3) collaborative establishment of goals and criteria through class discussion, and 4) learning and evaluation phases. In the experimental class, students draft learning goals, which are then refined through teacher guidance and class discussions, focusing on improving speaking abilities, understanding of moral values, and English competencies. Assessment criteria include a written summary, peer and self-assessments, weekly reflective journals, and an exam, with the latter two based on Liu and Wang's research for EFL students. During the course, the teacher guides students through activities to enhance speaking skills, with peer and self-assessments providing feedback. The evaluation in the experimental class is learning-oriented, comprising four assessments: a written summary in week 4, speaking performance and assessments in week 12, weekly reflective journals, and an exam in the final week, where students choose four out of seven pre-selected questions to answer.

4.4 Instruments

Qualitative data collection tools are used to answer the research questions 2 and 3, including post-questionnaire interview with students, interviews with teachers, and teachers' diary. The teacher's observations during the empirical study, the students' responses—whether vocal or nonverbal—the challenges they faced, and the teacher's thoughtful reactions are all documented in the journals. Qualitative data is categorized and analyzed as supporting evidence for arguments as well as a means of elucidating quantitative data.

5. Discussion

Based on the interview findings, it has been determined that despite the benefits of computer-assisted portfolios in facilitating learners' engagement with the learning process and identification of their strengths and weaknesses, efforts to address these limitations are ineffective. This conclusion is supported by the recurring documentation of similar mistakes or weaknesses in learners' reflective journals on a weekly basis. This ineffectiveness can be attributed to various factors. Firstly, inadequate feedback from teachers may hinder learners' ability to address their weaknesses. Additionally, the process of improving language proficiency is inherently slow. Furthermore, some learners may become overly reliant on the computer-assisted portfolio, leading to decreased motivation and effort. Finally, the excessive workload associated with the portfolio may result in frustration and superficial engagement with the reflection tasks.

Moreover, feedback is an important step in the evaluation process, only effective feedback can promote effective learning. It was found that the feedback given by the teacher to the students is often not timely as well as specific, so it is difficult for the students to clearly understand where their own deficiencies are and how to improve. The problem of feedback is mainly reflected in the fact that the information given by teachers is too general. Through the classroom observation, it can be learned that teachers' responses should use more evaluative words than descriptive words. The teacher should provide timely and effective responses to students' reflective journals, and the responses should involve more comments and guidance on the details of the students' reflective content, and explicitly present their own opinions, rather than generalized responses of good or bad. Such responses can provide further interactions between teachers and students outside the classroom and motivate them to learn from each other.

In order to solve this problem, the teacher can use clear and explicit language to point out the process and method of students' learning, and then give students relevant learning suggestions on this basis, so that students can determine their learning goals in the process of generalization and summarization, and

ultimately contribute to the improvement of their learning quality. As far as the English teachers themselves are concerned, teachers can give feedback to the students after their assignments have been corrected. Through this form of feedback, we can not only know the problems of students in the learning process and the reasons for the problems, but also give students relevant improvements and guidance.

6. Conclusions

Based on the analyzed data from students and teachers, the computer-assisted portfolio in the context of big data has been found to enhance the evaluation process by promoting a seamless integration of summative, formative, and autonomous assessments, facilitating a bridge between current learning and future endeavors, and fostering an interconnected relationship among learning, instruction, and testing particularly in moral education through language. Regarding the challenges encountered in the implementation process, issues such as deficient time management skills, underutilization of monitoring compared to other meta-cognitive strategies, increased workload for both teachers and students, delayed remediation of learning weaknesses, and the initial failure to engage in reflective journal writing within the first two weeks were identified. To tackle these challenges, recommendations have been proposed: providing guidance for teachers and promoting peer learning to enhance time management and journal writing skills, fostering student autonomy and leveraging educational technology to alleviate workloads, encouraging meta-cognitive strategies through enhanced feedback and guidance, and recognizing that language proficiency development is a gradual process that requires persistence, support, and guidance from peers and teachers. While the empirical evidence demonstrates the valuable impact of computer-assisted portfolio assessment using big data in moral education within an EFL context, there are limitations to consider. The research primarily focuses on this specific educational setting, and the study duration is constrained. To address these limitations, future research on learning-oriented assessment and computer-assisted portfolio implementation should encompass a broader range of contexts beyond the foreign language classes and

extend the duration of the study for a more comprehensive and nuanced understanding of the applications and implications of this innovative approach.

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References

- [1] Carless, David, “Learning-oriented assessment: conceptual bases and practical implications, *Innovations in Education and Teaching International*,” vol. 44(1), 2007, pp. 57-66.
- [2] Crooks, Terry, “Assessment for learning in the accountability era,” *New Zealand Studies in Educational Evaluation*, vol. 37, 2010, pp. 71-77.
- [3] Boud, David & Falchikov, Nancy, “Aligning assessment with long-term learning,” *Assessment & Evaluation in Higher Education*, vol. 31(4), 2006, pp. 399-413.
- [4] Stiggins, Rich, “From formative function to assessment for learning: A path to success in standards-based Schools,” *Phi Delta Kappan*, vol. 87(4), 2005, pp. 324-328
- [5] Birenbaum, Menucha & Kimron, Helena & Shiton, Hany, “Nested contexts that shape assessment for learning: school-based professional learning community and classroom culture,” *Studies in Educational Evaluation*, vol. 37, 2011, pp. 35-48.
- [6] Mok, M.M.C., “Assessment reform in light of self-directed learning oriented assessment framework: theoretical basis,” *Examinations Research*, vol. 4 (33), 2012, pp. 79-89.

- [7] Fulcher, Glenn, Practical Language Testing. London: Hodder Education, 2010, pp. 5.
- [8] Baig, M.I., Shuib, L. & Yadegaridehkordi, E., “Big data in education: a state of the

art, limitations, and future research directions,” Int J Educ Technol High Educ vol. 17, 2020, pp. 20.
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